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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Denis H. Endisch

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EXAMINER

GUERRERO, MARIA F

ART UNIT

PAPER NUMBER

2822

DATE MAILED: 11/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/943,237	ENDISCH ET AL.	
	Examiner	Art Unit	
	Maria Guerrero	2822	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 9-12-05.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 20,24-26,30,32,35 and 36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 20,24-26,30,32 and 36 is/are rejected.
- 7) ☒ Claim(s) 35 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This Office Action is in response to the Amendment filed September 12, 2005.

Status of Claims

2. Claims 1-19, 21-23, 27-29, 31 and 33 are canceled. Claims 20, 24-26, 30, 32 and 35-36 are pending.

Claim Objections

3. Claim 35 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 35 is dependent from the canceled claim 33.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 20 and 30 are rejected under 35 U.S.C. 102(b) as being anticipated by Yamashita et al. (US 5,779,928).

Yamashita et al. teaches spin-depositing a spin-on compound (comprising silicon (silicate)) on a surface of a substrate and spin rinsing the spin-on compound with a solvent mixture (Abstract, col. 2, lines 50-67, col. 3, lines 1-5). Yamashita et al. shows

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the solvent mixture comprising a first active solvent (hydrocarbon) that dissolves the spin-on compound, and the second solvent that is inert to the spin-on compound (Abstract, col. 3, lines 45-48, col. 4, lines 1-32).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 20, 26, 32, 34, and 36 are rejected under 35 U.S.C. 103(a) as being obvious over Huang et al. (U.S. 6,485,576) in view of Yoshida et al. (U.S. 6,534,595).

Huang et al. teaches spin-depositing a spin-on compound (comprising silicon) on a surface of a substrate and spin rinsing the spin-on compound with a solvent mixture (Abstract, col. 1, lines 14-16, col. 3, lines 20-45 col. 4, lines 28-50). Huang et al. shows the solvent mixture comprising a first active solvent (IPA, isopropyl alcohol) that dissolves the spin-on compound, and the second solvent that is inert to the spin-on compound (col. 4, lines 28-50). Huang et al. teaches the spin-on compound being SOG (silicate) (Abstract, col. 1, lines 14-20). Huang et al. shows the solvent mixture comprising ethyl lactate (col. 4, lines 30-45).

Huang et al. does not specifically show the mixture comprising the ester such as propyl acetate. However, Yoshida et al. is cited as evidence to show that the selection

of the ester (propyl acetate) as a solvent is within the capabilities of a person of ordinary skill in the art (col. 6, lines 49-60).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to recognize that the use of propyl acetate can be incorporated on Huang et al. reference as taught by Yoshida et al. because Huang et al. suggested that other solvent may be used (Huang et al., col. 4, lines 45-50) and this is a industrially available safe solvent (col. 6, lines 49-60).

6. Claims 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huang et al. (U.S. 6,485,576) and Yoshida et al. (U.S. 6,534,595) as applied to claims 20, 26, 32, 34, and 36 above, and further in view of Kalnitsky et al. (U.S. 5,435,888).

Regarding claims 24-25, the combination of Huang et al. and Yoshida et al. does not specifically show the substrate having a trench and the compound being a silicate. However, Kalnitsky et al. shows the substrate having a trench and spin-on deposited into the trench (Fig. 1A-3C, col. 3, lines 58-65, col. 4, lines 1-40).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the combination of Huang et al. and Yoshida et al. by including the substrate having the trench and spin-on deposited into the trench as taught by Kalnitsky et al. in order to produce interlevel dielectric having high degree of planarization (col. 1, lines 7-15).

Response to Arguments

7. Applicant's arguments filed September 12, 2005 have been fully considered but they are not persuasive. Claims 20, 24-26, 30, 32 and 36 stand rejected. Claims objections have been withdrawn.

8. Applicant argued that Yamashita et al. does not disclose the active solvent as claimed. However, Yamashita et al. shows the solvent mixture comprising a first active solvent (hydrocarbon) that dissolves the spin-on compound (see col. 4, lines 1-11) and the second solvent that is inert to the spin-on compound (Abstract, col. 3, lines 45-48, col. 4, lines 1-32).

9. Applicant argued that Huang does not disclose the active solvent component and the inert component. However, Tsai et al. (US 5,866,481) is presented as evidence to show that the solvent mixture disclosed by Huang comprises the active solvent component and the inert solvent component. Tsai et al. shows that isopropyl alcohol is a well-known active solvent component (col. 3, lines 55-62). Regarding the inert solvent component Huang discloses the same specific inert solvent component (ethyl lactate) as claimed. In addition the combination of Huang et al. and Yoshida et al. teaches the active solvent component being an ester.

10. Furthermore, "The use of patents as references is not limited to what the patentees describe as their own inventions or to the problems with which they are concerned. They are part of the literature of the art, relevant for all they contain." In re

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Heck, 699 F.2d 1331, 1332-33, 216 USPQ 1038, 1039 (Fed. Cir. 1983) (quoting *In re Lemelson*, 397 F.2d 1006, 1009, 158 USPQ 275, 277 (CCPA 1968)). A reference may be relied upon for all that it would have reasonably suggested to one having ordinary skill in the art, including nonpreferred embodiments. *Merck & Co. v. Biocraft Laboratories*, 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir.), cert. denied, 493 U.S. 975 (1989). See also *Celeritas Technologies Ltd. v. Rockwell International Corp.*, 150 F.3d 1354, 1361, 47 USPQ2d 1516, 1522-23 (Fed. Cir. 1998). Disclosed examples and preferred embodiments do not constitute a teaching away from a broader disclosure or nonpreferred embodiments. *In re Susi*, 440 F.2d 442, 169 USPQ423 (CCPA 1971).

11. In addition, the transitional term "comprising", which is synonymous with "including," "containing," or "characterized by," is inclusive or open-ended and does not exclude additional, unrecited elements or method steps. See, e.g., *Invitrogen Corp. v. Biocrest Mfg., L.P.*, 327 F.3d 1364, 1368, 66 USPQ2d 1631, 1634 (Fed. Cir. 2003) ("The transition comprising' in a method claim indicates that the claim is open-ended and allows for additional steps."); *Genentech, Inc. v. Chiron Corp.*, 112 F.3d 495, 501, 42 USPQ2d 1608, 1613 (Fed. Cir. 1997) ("Comprising" is a term of art used in claim language which means that the named elements are essential, but other elements may be added and still form a construct within the scope of the claim.); *Moleculon Research Corp. v. CBS, Inc.*, 793 F.2d 1261, 229 USPQ 805 (Fed. Cir. 1986); *In re Baxter*, 656 F.2d 679, 686, 210 USPQ 795, 803 (CCPA 1981); *Ex parte Davis*, 80 USPQ 448, 450 (Bd. App. 1948) ("comprising" leaves "the claim open for the inclusion of unspecified ingredients even in major amounts").

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12. Furthermore, during patent examination, the pending claims must be "given *>their< broadest reasonable interpretation consistent with the specification." > In re Hyatt, 211 F.3d 1367, 1372, 54 USPQ2d 1664, 1667 (Fed. Cir. 2000). While the claims of issued patents are interpreted in light of the specification, prosecution history, prior art and other claims, this is not the mode of claim interpretation to be applied during examination. During examination, the claims must be interpreted as broadly as their terms reasonably allow. > In re American Academy of Science Tech Center, F.3d, 2004 WL 1067528 (Fed. Cir. May 13, 2004)(The USPTO uses a different standard for construing claims than that used by district courts; during examination the USPTO must give claims their broadest reasonable interpretation.) < This means that the words of the claim must be given their plain meaning unless applicant has provided a clear definition in the specification. In re Zletz, 893 F.2d 319, 321, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989) >; Chef America, Inc. v. Lamb-Weston, Inc., 358 F.3d 1371, 1372, 69 USPQ2d 1857 (Fed. Cir. 2004).

Conclusion

13. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

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mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Maria Guerrero whose telephone number is 571-272-1837.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amir Zarabian can be reached on 571-272-1852. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

November 16, 2005


MARIA F. GUERRERO
PRIMARY EXAMINER